DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Mitigation Equipment	Date 5-26-95
Project Title/Work Order		EDT No. 609721
Acceptance Test Procedure, SY-101 Air Pallet System		ECN No. NA

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
BL Aftanas	H5-72	X			
DC Board	S1-57	X			
CE Brewer	S3-15	X			
CE Hanson	H5-09	X			
BM Koons	S3-10	X			
DP Niebuhr	T4-01	X			
MJ Ostrom	H5-68	X			
VE Renard	T4-03	X			
DD Rettkowski	T4-06	X			
RJ Koli	T3-01	X			
Central Files (2 copies)	L8-04	X			
OSTI (2 copies)	L8-07	X			
Project Files	H5-09	X			

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5 Ltr. 4

MAY 30 1995

ENGINEERING DATA TRANSMITTAL

1. EDT 609721

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Mitigation Equipment	NA
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
241SY101	V.E. Renard	WBJ-XVV-442585
8. Originator Remarks: See attached Acceptance Test Procedure for 241SY101 Air Pallet System.		**9. Equip./Component No.:** NA
		10. System/Bldg./Facility: 2403-WD
11. Receiver Remarks:		**12. Major Assm. Dwg. No.:** NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date: ASAP

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-ATP-134		0	Acceptance Test Procedure for SY101 Air Pallet System	SQ	1		

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN	(J) Name (K) Signature (L) Date (M) MSIN	(G) Reason	(H) Disp.
1	1	Cog.Eng. VE Renard B.M. Koons for VER 5-26-95 T4-03	Program Eng. MJ Ostrom Mike Ostrom 5-26-95 H5-68	1	1
1	1	Cog. Mgr. DB Powell D.B. Powell 5/30/95 T4-03	Program Mgr. CE Hanson C.E. Hanson 5/26/95 H5-09	1	1
1	2	QA DC Board Don Bicard 5-25-95 S1-57	Craig Brewer ind. review/crane & Riggins	1	1
1	1	Safety B.J. Kelly 05/30/95 T3-01			
		Env.			
1	1	Ops Rhonda Dunfee 5-26-95			

18. BM Koons — B.M. Koons — 5-25-95
Signature of EDT Originator — Date

19. VE Renard — B.M. Koons for VER — 5-26-95
Authorized Representative for Receiving Organization — Date

20. DB Powell — D.B. Powell — 5/30/95
Cognizant Manager — Date

21. DOE APPROVAL (if required)
Ctrl. No.
[] Approved
[] Approved w/comments
[] Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

RELEASE AUTHORIZATION

Document Number:	WHC-SD-WM-ATP-134, REV 0
Document Title:	Acceptance Test Procedure, SY101 Air Pallet System
Release Date:	5/30/95

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz — May 30, 1995

TJ

SUPPORTING DOCUMENT

1. Total Pages 34

2. Title	3. Number	4. Rev No.
Acceptance Test Procedure,SY101 Air Pallet System	WHC-SD-WM-ATP-134	0

5. Key Words

air pallet
container
support stand
Central Waste Complex (CWC)

6. Author

Name: B.M. Koons

B.M. Koons 5-25-95
Signature

Organization/Charge Code N2B2K/W75751

7. Abstract

This Acceptance Test Procedure is to verify that the air pallet and support stand system fulfills its functional requirements. The performance of this procedure will also help to determine the man-dose expected durring the handling of the SY101 mitigation pump as it is being deposited into the 2403-WD building. This procedure attempts to simulate the events as they will take place durring the actual event of pump removal, transport and storage.

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE MAY 30 1995
Sta. 4

ACCEPTANCE TEST PROCEDURE

WHC-SD-WM-ATP-134

Rev. 0

SY101 AIR PALLET SYSTEM

TABLE OF CONTENTS

1 PURPOSE/SCOPE

The purpose of this test procedure is to verify that the system(s) procured to load the SY101 Mitigation Test Pump package fulfills its functional requirements. It will also help determine the man dose expected due to handling of the package during the actual event. The scope of this procedure focuses on the ability of the air pallets and container saddles to carry the container package from the new 100 foot concrete pad into 2403-WD where it will be stored awaiting final disposition.

This test attempts to simulate the actual event of depositing the SY-101 hydrogen mitigation test pump into the 2403-WD building. However, at the time of testing road modifications required to drive the 100 ton trailer into CWC were not performed. Therefore a flatbed trailer will be use to transport the container to CWC. The time required to off load the container from the 100 ton trailer will be recorded for man dose evaluation on location. The cranes used for this test will also be different than the actual event. This is not considered to be an issue due to minimal effects on man dose.

2 REFERENCES

H-2-83734 Sh. 1, Hydrogen Mixer Pump Storage Container

H-2-83744 Sh. 1, Lifting Beam, Rev 0

H-2-83750 Sh. 1, Hydrogen Mixer Pump Storage Transport Assembly Arrangement, Rev 0

H-2-83750 Sh. 2, Hydrogen Mixer Pump Storage Transport Assembly Arrangement, Rev 0

H-2-83750 Sh. 3, Hydrogen Mixer Pump Storage Transport Assembly Arrangement, Rev 0

H-2-83763 Sh. 1, CWC Storage Container Support

H-2-824515 Sh. 1, 101-SY Container Tie-Down Assembly, Rev 0

JPH-94-019, Central Waste Complex Air Pallet Test - Report, Internal Memo dated August 19, 1994

3 SYSTEM DESCRIPTION

This Test Procedure provides instruction for transporting the 52-foot long 101-SY Hydrogen Mitigation Mixer Pump (HMMP) container into storage at the 200 West Central Waste Complex (CWC) facility. The weight of the storage container is 57,000 pounds. The maximum potential weight of the package is 134,900 lbs with the HMMP and lead shot installed. The weight of the container support stands are 8,230 pounds each.

The mixer pump will be transported to a staging pad outside 2403-WD on a transport trailer. It will then be placed on the storage support stands using two cranes, and moved to its storage location in 2403-WD using two fork lifts assisted by an air pallet system.

4 RESPONSIBILITIES

The following personnel will be required for the performance of this procedure:

- Person in Charge (PIC): The individual assigned direct responsibility for the performance, preparation and adequacy of the test.
- Test Director: Engineer assigned responsibility for the test. The test director must be cognizant of the operation and capabilities of the equipment being tested.
- Rigging Specialist: Individual assigned to assist in the directing of hoisting and rigging operations.

Only personnel designated by the PIC are allowed to perform operating and control functions required to complete this test procedure.

Changes to this procedure may be made as red-line changes by the PIC, Test Director, or the Rigging Specialist. All red-line changes will be initialed and dated. All changes will be formally documented by ECN at the conclusion of this procedure. A record of all changes and deficiencies will be kept on Attachment 1, "Exception List".

5 PREPLANNING/COORDINATION

5.1 PARTICIPATING ORGANIZATIONS

Solid Waste Operations (SWO)
Solid Waste Management Facility Engineering (SWMFE)
Crane and Rigging
Operational Health Physics

A Solid Waste Operations manager will serve as the Work Plan manager. The Work Plan Manager may also act as the Person-in-Charge (PIC).

The PIC will serve as the interface between the Rigging Specialist (RS) and SWO personnel. During the test operation, all contacts from the SWO personnel to the Rigging Specialist shall be through the designated PIC as well as all requests for assistance from the RS to SWO personnel.

5.2 TOOLS, EQUIPMENT AND SUPPLIES

2 cranes for lifting the 57,000# SY-101 Container from a trailer and placing it on the laydown pad approximately 20' away

2 dynomometers for above cranes

2 ea. lifting beams (H-2-83744)

2 ea. 55 ton shackles

2 ea. container suppport stands (H-2-83763)

8 ea. 17 ton shackles

8 ea. Hook, chain and binder assemblies adjustable between 60 inches and 42 inches and capable of hooking between a 17 ton shackle and a 3 1/4 ton shackle

Miscellaneous rigging as specified by Crane and Rigging Services

Heavy equipment, tractor, 150 ton trailer HO-64-4297 (NOTE: do not use jeep HO-64-4297 in conjunction with the trailer for this operation).

2 Fork lifts with 1" to 1-1/4" hitch pin for use as tractors

4 Hovair System Load Modules SWL 60,000 pounds each with vendor supplied hoses (4 ea. 1" x 50' and 5 ea. 1-1/2" x 100') and air regulation control console

Air compressor (minimum 500 SCFM)

Six sheets of 22-gauge sheet metal approximately 1 X 8 feet, edges free of burrs or sharp corners that might cut or tear the load module air castors

Minimum of 1 roll of metallic-backed foil tape

Plywood for footing

Air impact wrench and sockets for 1 in and 2.5 in diameter container mounting bolts (Required for removing container from trailer at sodium storage yard)

Other tools and equipment as needed

5.3 PERSONNEL TRAINING REQUIREMENTS

A pre-job safety meeting will be conducted with all participating personnel. All personnel working on this job will have successfully completed 24-hour Hazardous Waste Worker training.

SPECIFIC CRANE AND RIGGING PERSONNEL REQUIREMENTS

Riggers shall be qualified per DOE-RL-92-36, Hanford Site Hoisting and Rigging Manual, Section 4.0, Personnel Qualifications and Training Requirements.

The Rigging Specialist (RS) shall be a qualified Rigger or recognized rigging authority with at least 5 years of hoisting and rigging experience and selected by the employer to advise and/or supervise hoisting and rigging activities.

5.4 PRESTART CONDITION

SWO management shall conduct a pre-job planning and safety meeting with all personnel directly involved with the air pallet test. This test procedure shall be discussed in detail before starting work. This pre-job meeting shall be documented with date and attenders.

SWO Management	Date	Time

SWO management has verified that facility preparations have been completed and equipment and materials are in place prior to test start including, but not limited to, the following:

- Concrete receiving pad is constructed as specified outside 2403-WD.
- Storage cradles are located on the receiving pad with the Hovair systems in place.
- Two mobile cranes and proper rigging hardware are in place to transfer the container from the transport trailer to the storage cradles.

The Rigging Specialist shall verify that equipment and rigging accessories are within current certification status. Items verified include: shackles, slings, lifting devices, etc.

Rigging Specialist	Date	Time

SWO shall recieve the package in accordance with SW-100-110, "Receive Radioactive Waste at the Central Waste Complex".

SWO Management	Date	Time

6 SAFETY

The 101-SY HMMP movement is a special/unique operation because of container size and weight. Any potential hazards must be mitigated by equipment, procedures and administrative controls to ensure acceptable-risk operating conditions.

6.1 HAZARDOUS CONDITIONS CONTROL

Caution- **BE ALERT** of additional hazards imposed by moving trucks, heavy equipment, and oversize/heavy loads.

Rope off the area as directed by the Rigging Specialist to prevent the entry of unauthorized personnel, if required.

No personnel at any time will be permitted to position themselves under or in the path of the load.

All affected personnel shall wear hard hats, gloves, safety glasses, safety shoes, and other protective equipment as required by facility procedures.

If this test procedure cannot be performed as written, STOP WORK. Return equipment to a safe condition and inform the Test Director that the procedure cannot be performed as written and that a change is required.

During the use of the Hovair System, always keep fingers and toes clear of the load and load modules while the air is on.

Before turning on the Hovair System, assure that the fork lift is attached as directed by the Rigging Specialist.

To avoid damage to the bearings, do not shut off the air while the system is in motion, except in case of emergency.

6.2 ALARA

This test operation shall employ procedures and equipment which ensure good ALARA practice.

6.3 STANDARDS

Work will be conducted in accordance with:
WHC-CM-4-3; Vols. 1-4, Industrial Safety Manual
WHC-IP-0263-CWC, Building Emergency Plan for the Central Waste Complex
DOE-RL-92-36, Hanford Site Hoisting and Rigging Manual

7 TEST PROCEDURE

7.1 MANAGEMENT INFORMATION

NOTE - Administrative hold steps are identified by letters in parenthesis at the left margin of the procedure step. The direction given in the procedure step must be satisfied before work continues.

(S) - The SWO Work Plan Manager shall approve continued operations.

(H) - Health Physics shall complete surveys or agree to permit continued operation.

1. If a problem arises during the performance of the Test Procedure, management will make the appropriate notification as follows:

EMERGENCY OFFICE	911
HEALTH PHYSICS	373-2210
SWO MANAGEMENT	373-4585

7.2 RECEIVE CONTAINER AT CWC

1. SWO management will **VERIFY** that all pre-start conditions have been met.

2. **ESTABLISH** clear lines of communication.

3. **RECEIVE** the transport trailer into the CWC and **POSITION** it next to the specially constructed 2403-WD receiving pad as directed by the RS.

4. **LIFT** the container from the trailer using the two cranes as directed by the RS. Let the load stabilize and record the loads on each crane.

   CRANE 1 Load:_____ pounds

   CRANE 2 Load:_____ pounds

   NOTE: CRANE 1 is designated as the crane lifting between container lines 4 and 5. CRANE 2 is designated as the crane lifting between container lines 22 and 23.

5. **LOAD** the container onto the support stands, using the two cranes, as directed by the RS.

6. **TIE DOWN** the container to the support stands using the eight chains and binders as directed by RS.

7.3 POSITION CONTAINER IN 2403-WD

1. The Test Director shall **CALCULATE** the air pressure settings for the air pallets using the following work sheet:

(_____ (lbs) + 8,230 (lbs)) / 4,800 (in^2) = _____ (psi)
Crane 1 Load; Support Weight; Total Lift Area; Setting for pallets below CL 4 and 5

(_____ (lbs) + 8,230 (lbs)) / 4,800 (in^2) = _____ (psi)
Crane 2 Load; Support Weight; Total Lift Area; Setting for pallets below CL 22 and 23

2. **SWEEP** and clear the pad and CWC floor of any dirt and debris as directed by PIC.

3. **POSITION** the sheet metal as directed by the RS throughout the prescribed path for rolling the load. **FASTEN** the sheet metal to the floor useing the metallic-backed tape.

_____ _____ _____
Rigging Specialist Date Time

4. **INSPECT** the load configuration to assure proper positioning. Once positioned on the air modules, **ATTACH** the towing yokes to each fork lift as directed by the RS.

_____ _____ _____
Rigging Specialist Date Time

5. **ATTACH** the air regulation control console hoses to each of the modules and to the main air supply as directed by the RS. **SET** all regulator valves to fully closed.

Caution - The Rigging Specialist shall assure that the fork lift is attached prior to turning the air on.

_____ _____ _____
Rigging Specialist Date Time

6. The system is now ready for use. Set the air flow and move the container into CWC by performing the following steps under the direction of the RS:

   1. **TURN ON** the air supply and blow out the supply hose before connecting to the air distribution console. **SLOWLY OPEN** the supply line ball valve when charging system.

   2. **OPEN** the regulator valves until the pressure gages read the pressure calculated in step 1. **TEST** to determine that the load is supported without friction.

   3. **ADJUST** the regulators as required until the load is supported without friction. A small amount of water placed around the air bearing will bubble lightly when properly adjusted. Due to line losses, the actual pressure required may be 25% to 50% higher than the calculated value.

   4. When the air pressure has been properly adjusted, the system is ready for use.

   Caution - To avoid damage to the air bearings, do not shut off air while system is in motion except in an emergency.

   5. **MOVE** the container using the fork lifts. Once inside the building, the container can be moved by hand to the established location.

   6. **PLACE** plywood shoring beneath support footings and slowly turn off air supply to air pallets.

_____ _____ _____
Rigging Specialist Date Time

(S) 7. Visually **INSPECT** for any signs of floor damage.

8. IF damage has occurred, **STOP** the operation and await determination of a recovery rigging plan.

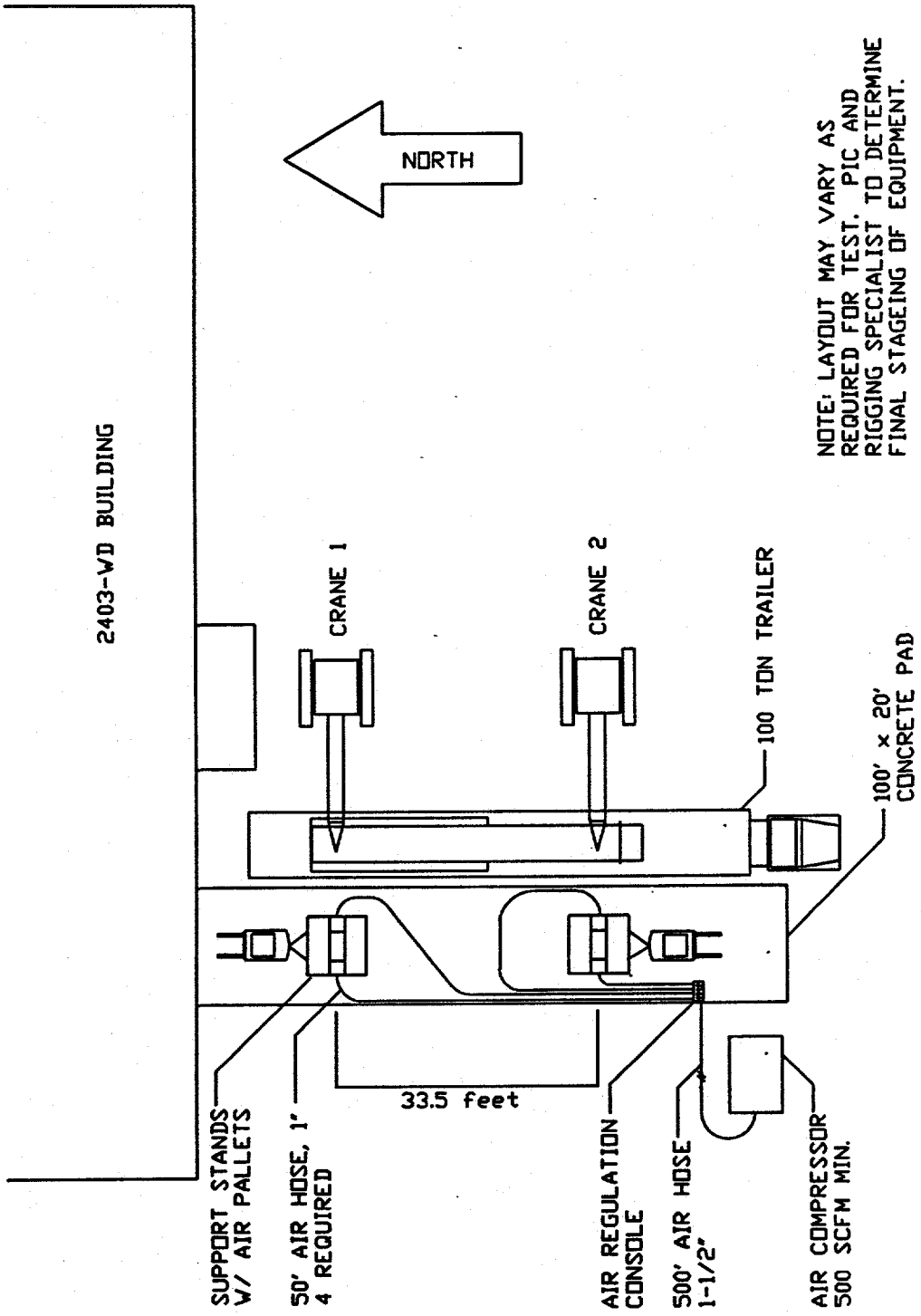
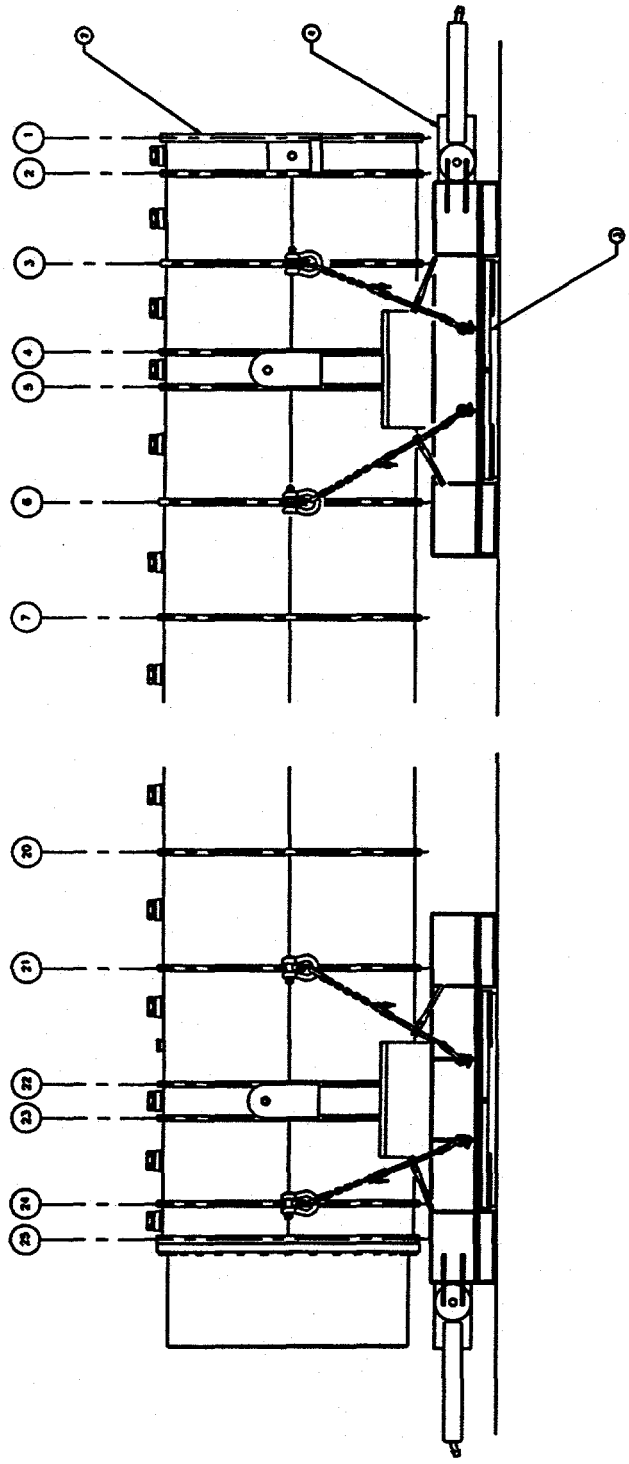


FIGURE 1. LAYOUT



NO.	QTY	DESCRIPTION	MATERIAL
2	1	STORAGE CONTAINER	H-2-83734
3	4	AIR PALLET LOAD MODULE (60,000 LB CAPACITY)	AREO GO # K60N
4	2	CWC STORAGE CONTAINER SUPPORT	H-2-83763
9	AR	RATCHET TYPE LOAD BINDER	CROSBY # L-140-R-A
10	AR	1/2" CHAIN	TYPICAL
12	8	CLEVIS SLING HOOK (1/2" CHAIN)	CROSBY # A-339
13	8	17 TON FORGED SHACKLE	CROSBY # G-209

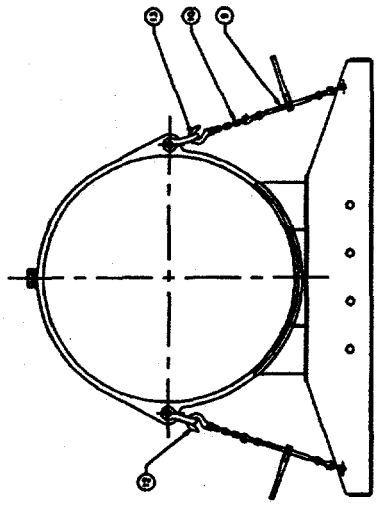


FIGURE 2. CRADLE/CONTAINER TIEDOWN

8 EXCEPTIONS TO TEST

Exceptions to the test shall be dispositioned and agreed to by the test engineer and quality assurance representative. Actions taken regarding dispositions shall be noted on the exception sheet (Attachment 1).

9 ACCEPTANCE TEST COMPLETION SIGN-OFF

The SWO Work Plan Manager shall sign below to indicate the completion of the Work Plan and provide this sign-off sheet to Solid Waste Operations Support for retention in the history file. A copy of this sign off sheet and the acceptance test report (WHC-SD-WM-ATR-134) will be sent to Characterization/Mitigation Equipment Design project files (MS H5-09).

_____

Signature Date

10 ATTACHMENTS

AIR PALLET TEST EXCEPTION LIST

EXCEPTION	STEP NUMBER	EXCEPTION DESCRIPTION	EXCEPTION RESOLUTION	RESOLUTION APPROVED BY:	DATE RESOLVED

Attachment 1: EXCEPTION LIST

Attachment 2: AIR PALLET OPERATING & MAINTENANCE INSTRUCTIONS

Operating & Maintenance Instructions

Standard Aero-Caster Air Film Load Handling Systems

Table of Contents

There is no magic or mystery in the operation of Aero-Caster Systems. Given a smooth, non-porous surface and a supply of air at the right pressure and volume, systems can be sized to lift and move any load. Following these operational and maintenance guidelines will ensure troublefree performance for your Aero-Go equipment for years to come.

Your factory-trained Service Representative is:

AeroGo

Corporate Office:
Aero-Go, Inc.
1170 Andover Park West
Seattle, WA 98188
Toll-free: (800) 426-4757
Phone: (206) 575-3344
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B-2180 Ekeren (Antwerpen)
Belgium
Phone: +./32/(0)3/541.02.78
Fax: +./32/(0)3/541.83.08

BALANCING YOUR LOAD

Standard Aero-Go air film platform pallets, plank-conveying systems or load module rigging systems are sized according to your maximum load weights and dimensions. Aero-Caster Elements of the same size in the system are either arranged in a triangular or square pattern with **center of gravity of load placed close to geometric center of pattern.** Air film equipment is parallel with the floor.

MANUAL REGULATION LIFT:

When your needs require a system to lift and move a variety of loads with different eccentricities over varying floor surfaces where you intend to use temporary **surface overlays** to bridge floor joints or cracks, a system is furnished so you can **manually** regulate proper air pressure to each caster to aid in flotation from one surface condition to another. A typical Load Module System with Manual Control Console and its operating principle is defined below:

AUTOMATIC LIFT:

When loads are eccentric and it is known that load moves will occur over a **continuously** good operating surface with no overlays to traverse, the use of a flow control valve at each load module or internally manifolded in pallet or plank systems provides **automatic** air pressure adjustment to each caster to carry the load above it.

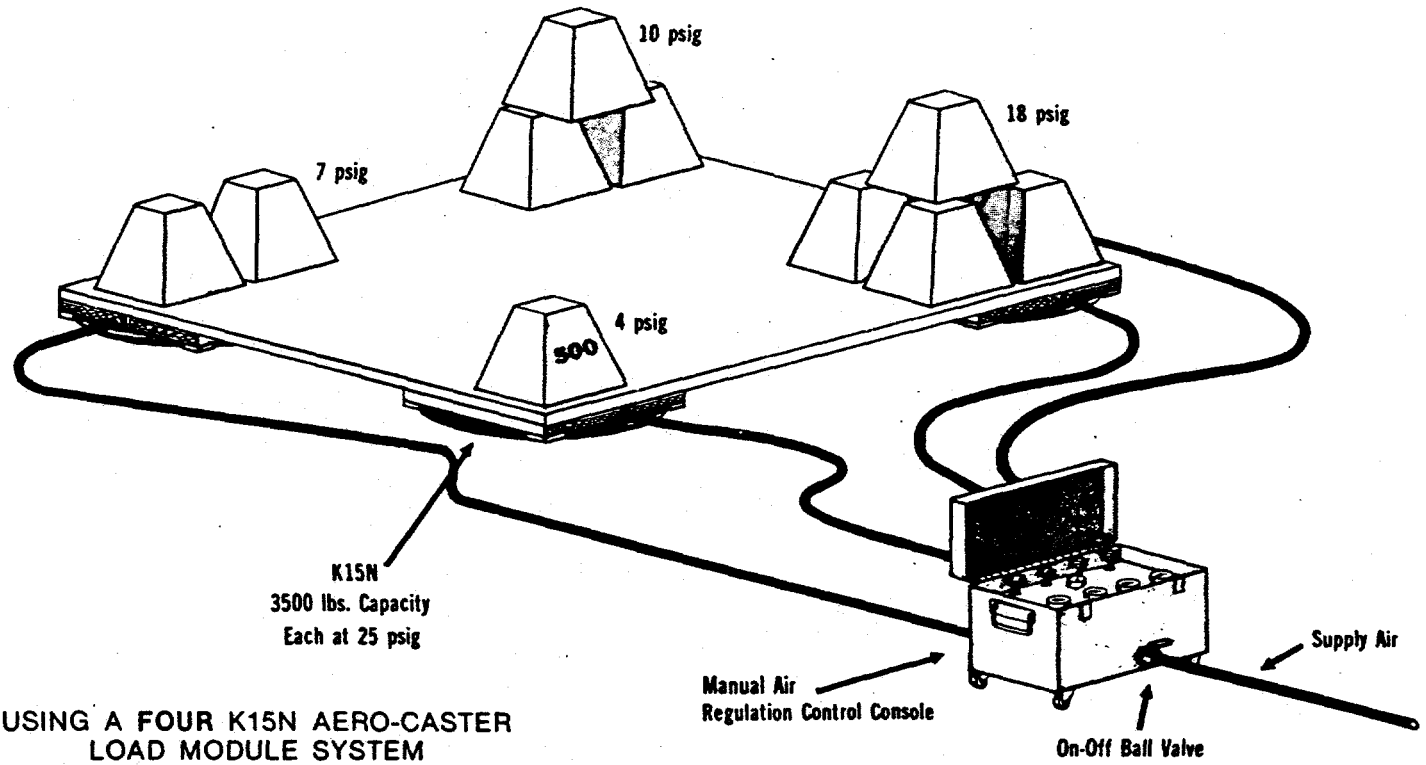
On pallet or plank systems with automatic regulation, just open the main pressure regulator to 15 psi above required operating pressure. Then open the main Air On/Off Ball Valve. The system takes over to lift and float eccentric loads over good surfaces without need of manual air pressure adjustments.

With flow controls on load module systems, an Automatic Control Console is used to separate air supply through interconnecting air lines to each module. Open the main regulator and turn open the ball valve for automatic system operation.

CENTERING YOUR LOAD

Example: 5,500 lb. Off-Center Load

Each 15" diameter Aero-Caster air film bearing with a chamber face area of 140 sq. in. lifts the load above it in direct proportion to the air pressure applied. Thus, 1 psig floats 140 lbs. and 25 psig floats 3,500 lbs.



USING A **FOUR** K15N AERO-CASTER LOAD MODULE SYSTEM

(14,000 lb. lift capacity at 25 psig maximum)

AIR SUPPLY

BLOW OUT PLANT AIR LINES TO CLEAR THEM FROM ANY DIRT OR OBSTRUCTIONS BEFORE COUPLING TO YOUR AERO-CASTER SYSTEM

VOLUME:

Refer to Engineering Bulletin No. EB 0978, or the chart in Aero-Caster Load Module Brochure to find the volume of air required for your application. The air volume (SCFM) indicated determines the compressor volume rating required.

To check if your compressor will provide the air volume needed, multiply the horsepower rating of your compressor by four to give you its approximate SCFM output.

COMPRESSOR OUTPUT FORMULA*

Example:

A 25 hp electric motor multiplied X 4 = 100 SCFM

**This is only a formula. For true compressor output, when in doubt, use a flow meter with the appropriate pressure gage to check the output of a vintage compressor.*

Compare this to stated requirements for your Aero-Caster System. To minimize the loss of air pressure at needed air volume, keep supply lines as short and as large as feasible. Keep air pressure high in the hose and regulate it down at or near the main inlet into your system.

Use only flow-through hose fittings, couplings and pressure regulators as supplied or specified by Aero-Go.

PRESSURE:

Supply air at a pressure sufficient to float your load. This will be up to 25 psig (at the caster) for standard casters and 50 psig for heavy duty (HD) casters. A regulator may be used to step down to this pressure from normal plant air at 100 psig.

Actual working pressure at the equipment's main air inlet will include the calculated pressure and corrections for any downstream pressure losses in the system. Therefore, the inlet pressure may be 25% to 50% higher than the calculated lift pressure. The pressure at the compressor or portable blower source may be still higher, due to losses in hose lengths, fittings and valves.

AIR HOSES:

Recommended **minimum** hose sizes for a **four** Aero-Caster Load Module System:

	Hose I.D.*		
Model	Supply Hose 0-50'	Supply Hose 50-100'	Interconnecting Hoses
K12N	¾"	¾"	½"
K15N	¾"	¾"	½"
K21N	1"	1¼"	¾"
K27N	1"	1¼"	¾"
K36N	1"	1¼"	¾"
K48N	1¼"	1½"	1"
K21NHD	1¼"	1½"	1"
K27NHD	1¼"	1½"	1"
K36NHD	1¼"	1½"	1"
K48NHD	1¼"	1½"	1"

**Based on a standard 100 psig pressure source and a smooth, sealed operating surface.*

OPERATING SURFACES:

The operating surface is critical to the efficient operation of air film products. A smooth, non-porous surface such as sealed, hand-trowelled concrete or vinyl tile is ideal. Unsealed concrete may be permanently upgraded for air film handling use by sealing with many kinds of commercial penetrating sealers. Fill cracks with a silastic compound filler.

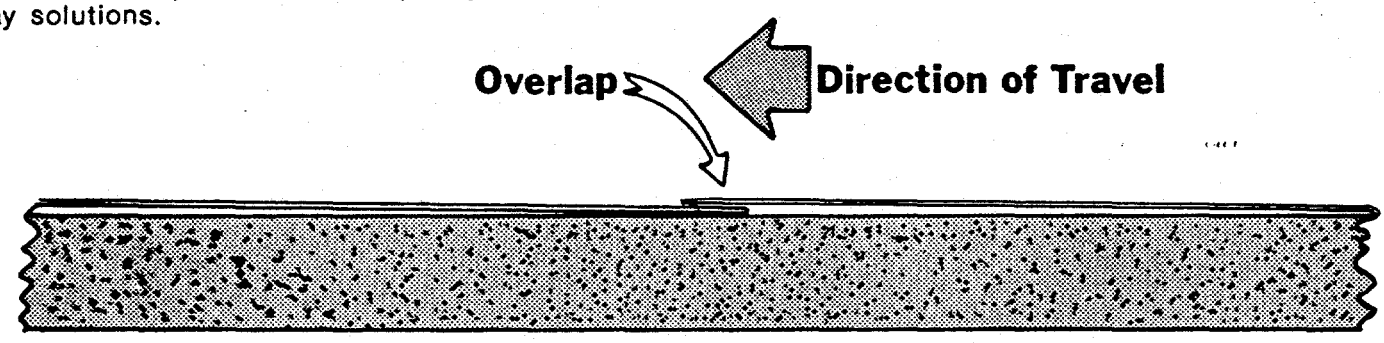
Surfaces with porosity rob your system of air, either destroying air film, or causing you to operate your equipment with air volumes much more than the air supply you would normally require.

See Aero-Go Engineering Bulletin No. 2 for recommended permanent or temporary surface overlay solutions.

To move loads over cracks that cannot be permanently filled, such as door moldings, floor joints or elevator gaps, inexpensive overlay materials such as thin-gage sheet metal or unembossed linoleum can be used.

For a straight path move, two overlay tracks - over which your parallel arrangement of modules can float - can be formed by shingling sheets of metal in the direction of load travel so that casters are always moving from the higher to the lower overlay.

If necessary to butt pieces of overlay, tape them from underside of the butt. Put down contact cement and adhere overlay on top.



SURFACE GRADES

The flexible Aero-Caster is constructed to contour and conform to out-of-plane surface undulations. A normal factory floor with a deviation of ¼" in any 10' circle is perfectly satisfactory.

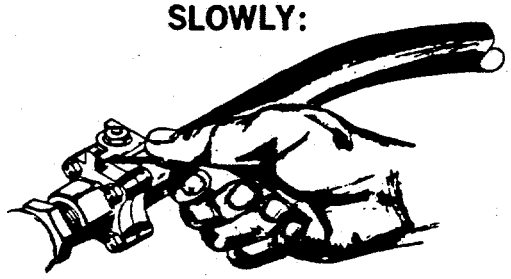
Friction is so low that a floating load will float downhill on a slight grade. A restraining force equal to the downhill component of the load weight (280 lbs. for a 28,000 lb. load on a 1% grade) must be applied. Restrain loads for positive control with common rigging methods such as tether lines, winches, and guide rails.

SYSTEM STARTUP

Clear your plant air lines before system hookup; tighten all connections loosened during shipment. The path of travel should be swept free of debris such as nuts, bolts or excessive dirt.

When a system is loaded, open the main Air On/Off Ball Valve slowly.

OPEN AND CLOSE BALL VALVE SLOWLY:



Then open regulator(s) gradually to the pre-calculated load-carrying pressures until lift and an "air film float" is established. A gentle nudge moves a 2-ton load. A small amount of water poured around your inflated casters will bubble when free-float is established.

NEVER FORCE A LOAD

Less than 1 lb. of push will move every 1,000 lbs. of load weight when riding on air film. If there is a tendency for the casters to turn under, you have insufficient air supply or there are air leaks in the lines.

PROBLEMS?

Check the following list for source of your problem and correct. Contact your Aero-Go service representative or the factory for unusual conditions.

A SYMPTOM: One or all of Aero-Casters fail to inflate properly.

CHECK AND CORRECT:

1. Inadequate air supply.
2. Restrictive fittings or undersized hose lines.
3. Obstructions in lines or debris in valves or system inlets.
4. Leaks in connections internal or external to system.
5. Valve(s) or regulator(s) partially turned off.
6. System overloaded.
7. System mishandled during prior move "brought to sliding stop" by turning off air. Casters possibly folded under when system was deflated. Slowly inflate and gently apply more pressure and push loaded casters in opposite direction of last movement or gently rock back and forth. Do not force units. **Recommended** you remove system from under load or remove load.
8. Object caught under casters or something stuck to face of caster.
9. Surface is rough, porous or contains cracks - no air film seal can be established. Use overlays or upgrade surface. If still no inflation, check for cause other than rough floor, i.e. C.G. of load too far off center excessively overloading some casters.
10. Unusual ramp angle has caused casters to ground out or floor too wavy so flexible casters cannot inflate to floor to establish seal.
11. Caster is damaged or worn and requires replacing or caster was mounted incorrectly.

B SYMPTOM:

Aero-Casters appear to be equally inflated, but large force is required to move load.

CHECK AND CORRECT:

1. Inadequate air pressure and volume from supply to move load over **that** floor and at **those** distances from your air supply. Increase supply. Consider overlays.
2. Valve/regulators partially turned off.
3. Inadequate tractive pull due to uphill grades.
4. Casters are not fully inflated or air film not established before movement began.
5. Load improperly balanced on system. Reposition your system under load so C.G. is close to geometric center of casters.

C SYMPTOM:

Aero-Casters are making whistling or squealing noises.

CHECK AND CORRECT:

A slight hissing noise in the air supply system is normal. A squeal or whistle will occur when crossing a small crack or hole or traversing a slight step or when floating over thin, non-rigid overlays (plastic). A **continuous** and **loud** squealing noise may indicate:

1. Excess air being applied. Turn pressure down until noise stops and load floats freely.
2. System loaded too far off-center and operates only with excess air to those casters carrying a light load. Readjust regulators to provide correct air pressure to each or re-center load.
3. Inlet hole into caster not sealed by removal of protective mylar from doubleback gasket tape. Other air leaks in connections.

D SYMPTOM:

Two Aero-Casters at opposite corners of a pallet are only carrying the load causing a diagonal rocking between remaining casters.

1. Too much air pressure supplied when carrying a light load.
2. Valves or caster inlets are obstructed or regulators to non-supporting casters are partially closed.

MAINTENANCE: AERO-CASTER AIR FILM HANDLING SYSTEMS

As you begin to use your system you'll discover the need for **minimum** maintenance. Although very simple preventive maintenance is required, the **key** to maintaining long equipment life, always ready to go to work, rests on your attention to following these easy procedures routinely.

BEFORE EVERY MOVE

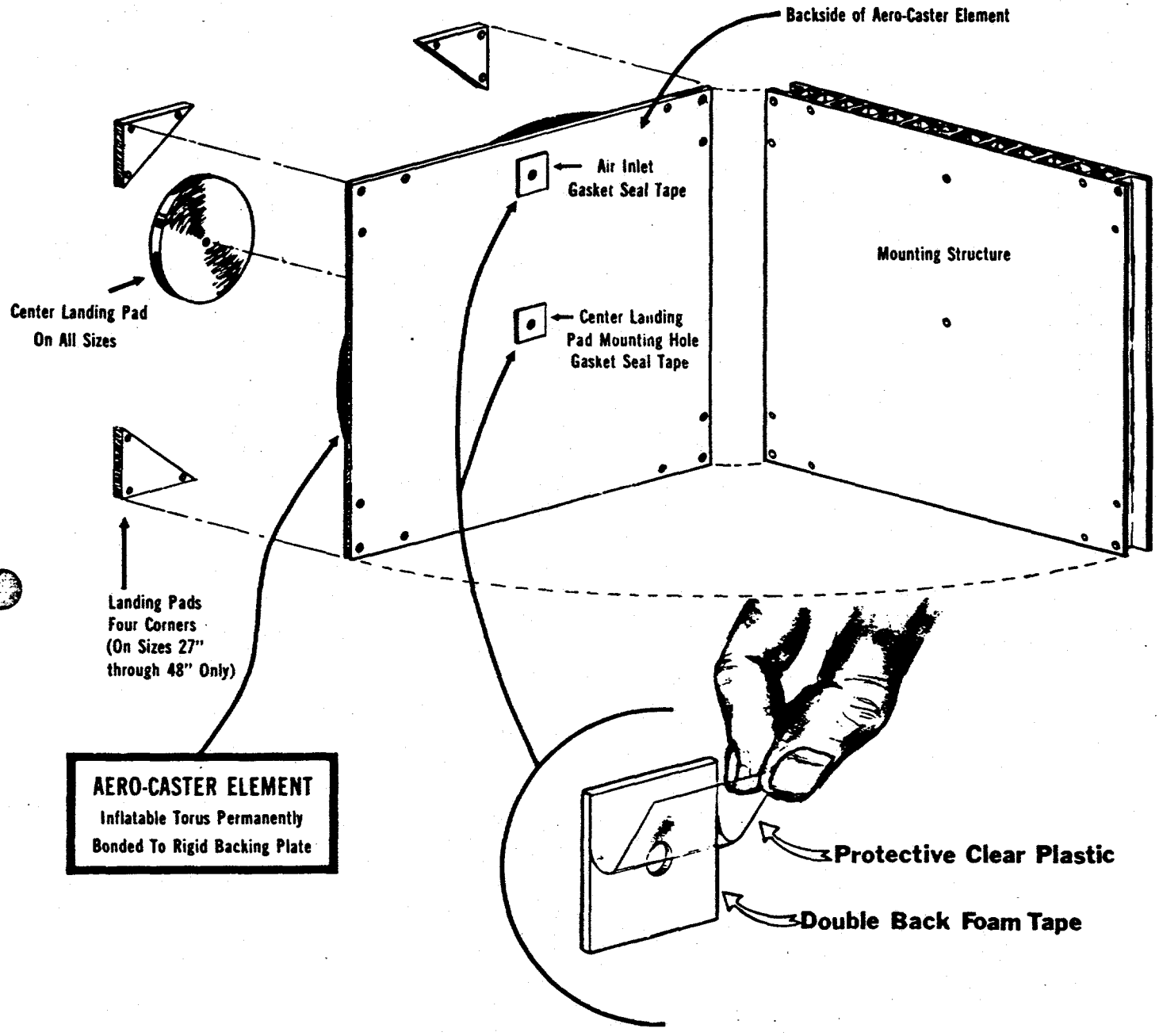
1. DO inspect operating surface and sweep free of any dirt buildup or production debris.
2. DO ensure surface is free of any full-strength puddles of any abrasive chemicals, cutting oils, or fire-resistant hydraulic fluid. Should Aero-Casters come in contact with any of these substances, clean caster fabric as soon as possible with warm soapy solution, rinse and wipe dry.
3. DO check all air and mechanical connections which may have loosened during shipment or last equipment use.
4. DO check air supply lines and **blow** them and main supply line clear of dirt or debris **first** before each hookup to your system.

PERIODIC MAINTENANCE

1. DO clean casters with a cloth free of solvents or with a stiff brush (not wire) to remove any accumulation of dirt from caster fabric.
2. DO check inside the caster's torus for any dirt or small object which may have lodged there. Use a little air to them to ensure nothing is lodged in caster inlet.
3. DO re-coat caster outer fabric with protective urethane should fabric lose its shine after excessive equipment usage. Consult your dealer for proper Aero-Koat Kit and re-coating instructions.
4. DO check casters thoroughly for any cuts or tears in fabric or worn areas which may result in failure during operation under load. To prevent failure possibility, replace caster with a spare replacement.

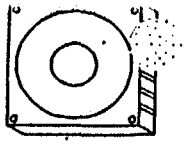
SPARES - REPLACEMENT:

STANDARD AERO-CASTER ELEMENTS



ELEMENT REPLACEMENT INSTRUCTIONS

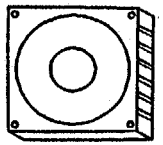
1. Remove screws and save from Aero-Caster Element you are removing from your system.
2. Clean mounting structure and remove any old doubleback foam sealing tape with scraper (Stanley knife or other) to provide a smooth surface (clean and dry) to which new seal tape from new replacement element will adhere.
3. Temporarily position new element on mounting structure to line up the holes in element with those in structure.
4. Remove the protective clear plastic (mylar) from all the foam tape on the new element. Carefully locate the element on mounting structure and press firmly to seal.
5. Replace the screws to secure the element on mounting structure.



LOAD MODULE SPECIFICATIONS
Fixed Mount

Model	Capacity (lbs)	Pressure (psig)	Caster Diameter (in)	Lift Area (sq in)	Air Flow - Load @ 1/4 (scfm)	Air Flow - Load @ Full (scfm)	Nominal Dimensions Length x Width x Height (in)	Effective Lift (in)	Air Connection NPT - M	Landing Pad Total Area (thk)	Landing Pad Total Area (sq in)	Module Net Wt (lbs)	Element Net Wt (lbs)	Model
K6N	250	12.5	6	20	2	4	6 x 6 x 1-7/8	1/4	1/2	1/16	2	5	1	K6N
K8N	500	12.5	8	40	2	6	8 x 8 x 1-7/8	3/8	1/2	1/4	5	6	1	K8N
K12N	2,000	25.0	12	80	3	12	12 x 12 x 1-7/8	3/4	1/2	1/4	11	13	2	K12N
K15N	3,500	25.0	15	140	8	14	15 x 15 x 1-7/8	7/8	1/2	1/4	24	20	3	K15N
K21N	7,000	25.0	21	280	14	16	21 x 21 x 2	1-1/8	3/4	3/8	44	25	4	K21N
K27N	12,000	25.0	27	480	16	18	27 x 27 x 2-7/16	1-3/8	3/4	3/4	159	49	17	K27N
K36N	20,000	25.0	36	800	17	24	36 x 36 x 2-11/16	1-3/4	3/4	1	294	88	35	K36N
K48N	40,000	25.0	48	1,600	18	26	48 x 48 x 2-11/16	2-5/8	1	1	526	168	61	K48N
K60N	60,000	25.0	60	2,400	30	50	60 x 60 x 2-3/4	3-1/4	1	1	750	300	150	K60N
K8NHD	1,000	25.0	8	40	4	8	8 x 8 x 1-7/8	3/8	1/2	1/4	5	7	1	K8NHD
K12NHD	4,000	50.0	12	80	6	12	12 x 12 x 1-7/8	3/4	1/2	1/4	11	13	2	K12NHD
K15NHD	7,000	50.0	15	140	11	20	15 x 15 x 1-7/8	7/8	1/2	1/4	24	21	4	K15NHD
K21NHD	14,000	50.0	21	280	18	30	21 x 21 x 2	1-1/4	3/4	3/8	44	27	6	K21NHD
K27NHD	24,000	50.0	27	480	20	40	27 x 27 x 2-7/16	1-1/2	3/4	3/4	159	54	22	K27NHD
K36NHD	40,000	50.0	36	800	22	45	36 x 36 x 2-11/16	1-7/8	1	1	294	95	42	K36NHD
K48NHD	80,000	50.0	48	1,600	40	50	48 x 48 x 2-11/16	3	1	1	526	178	71	K48NHD
K60NHD	120,000	50.0	60	2,400	60	80	60 x 60 x 2-3/4	3-1/2	1	1	750	320	170	K60NHD
K12U	2,000	25.0	12	80	5	12	12 x 12 x 1-7/8	3/4	1/2	1/4	11	13	2	K12U
K15U	3,500	25.0	15	140	10	18	15 x 15 x 1-7/8	7/8	1/2	1/4	24	20	3	K15U
K21U	7,000	25.0	21	280	21	24	21 x 21 x 2	1-1/8	3/4	3/8	44	25	4	K21U
K27U	12,000	25.0	27	480	24	27	27 x 27 x 2-7/16	1-3/8	3/4	3/4	159	49	17	K27U
K36U	20,000	25.0	36	800	26	36	36 x 36 x 2-11/16	1-3/4	3/4	1	294	88	35	K36U
K48U	40,000	25.0	48	1,600	27	39	48 x 48 x 2-11/16	2-5/8	1	1	526	168	61	K48U
K60U	60,000	25.0	60	2,400	40	65	60 x 60 x 2-3/4	3-1/4	1	1	750	300	150	K60U
K15UHD	7,000	50.0	15	140	15	30	15 x 15 x 1-7/8	7/8	1/2	1/4	24	21	4	K15UHD
K21UHD	14,000	50.0	21	280	27	45	21 x 21 x 2	1-1/4	3/4	3/8	44	27	6	K21UHD
K27UHD	24,000	50.0	27	480	30	60	27 x 27 x 2-7/16	1-1/2	3/4	3/4	159	54	22	K27UHD
K36UHD	40,000	50.0	36	800	33	68	36 x 36 x 2-11/16	1-7/8	1	1	294	95	42	K36UHD
K48UHD	80,000	50.0	48	1,600	60	75	48 x 48 x 2-11/16	3	1	1	526	178	71	K48UHD
K60UHD	120,000	50.0	60	2,400	75	90	60 x 60 x 2-3/4	3-1/2	1	1	750	320	170	K60UHD

Air flow data is an estimate. Actual air flow is dependent on load weight, floor conditions and proper adjustment.



LOAD MODULE SPECIFICATIONS
Slide-Mount

Model	Capacity (lbs)	Pressure (psig)	Caster Diameter (in)	Lift Area (sq in)	Air Flow - Load @ 1/4 (scfm)	Air Flow - Load @ Full (scfm)	Nominal Dimensions Length x Width x Height (in)	Effective Lift (in)	Air Connection NPT - M	Landing Pad Total Area (thk)	Landing Pad Total Area (sq in)	Module Net Wt (lbs)	Element Net Wt (lbs)	Model
K8NSM	500	12.5	8	40	2	6	11-5/8 x 8 x 2	1/4	1/2	3/8	22	10	1	K8NSM
K12NSM	2,000	25.0	12	80	3	12	16-5/8 x 12 x 2	1/2	1/2	1/2	48	17	2	K12NSM
K15NSM	3,500	25.0	15	140	8	14	19-5/8 x 15 x 2	5/8	1/2	1/2	60	27	3	K15NSM
K21NSM	7,000	25.0	21	280	14	16	26-1/8 x 21 x 2-1/8	7/8	3/4	5/8	95	31	4	K21NSM
K27NSM	12,000	25.0	27	480	16	18	34-1/8 x 27 x 2-9/16	1-1/4	3/4	1	162	63	10	K27NSM
K36NSM	20,000	25.0	36	800	17	24	43-1/8 x 36 x 2-13/16	1-1/2	1	1 1/4	216	106	20	K36NSM
K48NSM	40,000	25.0	48	1,600	18	26	55-1/8 x 48 x 2-13/16	2-1/4	1	1 3/8	336	152	41	K48NSM
K60NSM	60,000	25.0	60	2,400	30	50	67-1/8 x 60 x 2-7/8	2-3/4	1	1 1/2	480	278	110	K60NSM
K8NHDSM	1,000	25.0	8	40	4	8	11-5/8 x 8 x 2	1/4	1/2	3/8	22	11	1	K8NHDSM
K12NHDSM	4,000	50.0	12	80	6	12	16-5/8 x 12 x 2	1/2	1/2	1/2	48	19	2	K12NHDSM
K15NHDSM	7,000	50.0	15	140	11	20	19-5/8 x 15 x 2	5/8	1/2	1/2	60	28	4	K15NHDSM
K21NHDSM	14,000	50.0	21	280	18	30	26-1/8 x 21 x 2-1/8	1	3/4	5/8	95	33	6	K21NHDSM
K27NHDSM	24,000	50.0	27	480	20	40	34-1/8 x 27 x 2-9/16	1-1/4	3/4	1	162	68	15	K27NHDSM
K36NHDSM	40,000	50.0	36	800	22	45	43-1/8 x 36 x 2-13/16	1-5/8	1	1 1/4	216	113	27	K36NHDSM
K48NHDSM	80,000	50.0	48	1,600	40	50	55-1/8 x 48 x 2-13/16	2-5/8	1	1 3/8	336	155	44	K48NHDSM
K60NHDSM	120,000	50.0	60	2,400	60	80	67-1/8 x 60 x 2-7/8	3	1	1 1/2	480	298	120	K60NHDSM
K12N-HLSM	2,000	25.0	12	80	8/20*	12/27*	16-5/8 x 12 x 2	3/4 to 1-1/4*	1/2	1/2	45	17	2	*K12N-HLSM
K15N-HLSM	3,500	25.0	15	140	8/30*	14/50*	19-5/8 x 15 x 2	1 to 1-7/8*	1/2	1/2	60	27	3	*K15N-HLSM
K21N-HLSM	7,000	25.0	21	280	14/25*	18/60*	26-1/8 x 21 x 2-1/8	1-1/4 to 2-3/8*	3/4	5/8	95	31	4	*K21N-HLSM
K12USM	2,000	25.0	12	80	5	12	16-5/8 x 12 x 2	1/2	1/2	1/2	48	17	2	K12USM
K15USM	3,500	25.0	15	140	10	18	19-5/8 x 15 x 2	5/8	1/2	1/2	60	27	3	K15USM
K21USM	7,000	25.0	21	280	21	24	26-1/8 x 21 x 2-1/8	7/8	3/4	5/8	95	31	4	K21USM
K27USM	12,000	25.0	27	480	24	27	34-1/8 x 27 x 2-7/8	1-1/4	3/4	1	162	63	10	K27USM
K36USM	20,000	25.0	36	800	26	36	43-1/8 x 36 x 2-13/16	1-1/2	3/4	1 1/4	216	106	20	K36USM
K48USM	40,000	25.0	48	1,600	27	39	55-1/8 x 48 x 2-13/16	2-1/4	1	1-3/8	336	152	41	K48USM
K60USM	60,000	25.0	60	2,400	40	65	67-1/8 x 60 x 2-7/8	2-3/4	1	1-1/2	480	278	110	K60USM
K15UHDSM	7,000	50.0	15	140	15	30	19-5/8 x 15 x 2	5/8	1/2	1/2	60	28	4	K15UHDSM
K21UHDSM	14,000	50.0	21	280	27	45	26-1/8 x 21 x 2-1/8	1	3/4	5/8	95	33	6	K21UHDSM
K27UHDSM	24,000	50.0	27	480	30	60	34-1/8 x 27 x 2-7/16	1-1/4	3/4	1	162	68	15	K27UHDSM
K36UHDSM	40,000	50.0	36	800	33	68	43-1/8 x 36 x 2-13/16	1-5/8	1	1 1/4	216	113	27	K36UHDSM
K48UHDSM	80,000	50.0	48	1,600	60	75	55-1/8 x 48 x 2-13/16	2-5/8	1	1-3/8	336	155	44	K48UHDSM
K60UHDSM	120,000	50.0	60	2,400	75	95	67-1/8 x 60 x 2-7/8	3	1	1-1/2	480	298	120	K60UHDSM

*Lift height is dependent on air flow.
Air flow data is an estimate. Actual air flow is dependent on load weight, floor conditions and proper adjustment.

P0394 Effective March 1, 1994

WHC-SD-WM-ATP-134, Rev 0

OPERATING SURFACES

We are concerned with two characteristics of a surface: smoothness and porosity. Gentle undulations do not normally present problems.

Smoothness: The air film between the caster and the operating surface is in the range of .001" to .005" thick. Surfaces which have a degree of roughness of peaks and valleys greater than this thickness penetrate this film to cause drag and undue wear on the Aero-Caster and a much greater pushing effort is required.

Porosity: Unsealed concrete acts like a sponge to absorb air. Other materials such as plywood, blacktop, etc. will also absorb air preventing the formation of a proper operating film under the Aero-Caster and thus grounding it. The surface presented to the Aero-Caster should be completely non-porous.

The data supplied in the following discussion is based upon an assumed surface Index 2. Typical Index definitions are:

Recommendation	Surface Index	Description
RECOMMENDED SURFACES	1	Sheet or plate steel, glass, smooth vinyl tile, etc. (This is an excellent air film surface).
	2	Sealed, steel-troweled smooth concrete. (This is a very good air film surface considered "standard").
NOT RECOMMENDED	7	Unsealed, hand steel-troweled smooth concrete. (This surface may work only if a large quantity of extra air is available).

The Index number of the surface is a direct indicator of air required for proper flotation. The effect of the surface on air consumption is clearly evident. For example:

Index 1 is the best possible operating surface.
Index 2 requires twice as much air as Index 1.
Index 7 requires (7/2) three and one-half times as much air for operation as Index 2. The large volume of extra air is lost through the porous (unsealed) concrete.

Permanent Floor Surfaces:

Successful Aero-Caster operation requires a smooth, non-porous surface - a clean, "slick" material.

Examples of preferred floor surfaces are:

- .Varnished hardwood floors (gymnasiums)
- .Linoleum (non-embossed)
- .Vinyl tile (non-embossed)
- .Steel or Aluminum plate (no rust, oil, mill scale, burrs)
- .Formica
- .Concrete (Index 2 - smooth, steel-troweled and sealed with light reflecting non-porous penetrating surface sealant)
- .Coated concrete surface (coated with epoxy material to fill in peaks and valleys.

Temporary Surface Overlays:

Any clean, uncorroded "slick" surface material strong enough to bridge surface irregularities without being damaged by the air pressure load of the Aero-Casters would be suitable as a temporary surface overlay. Thickness of material depends upon its stiffness, underlying roughness, and air pressure load.

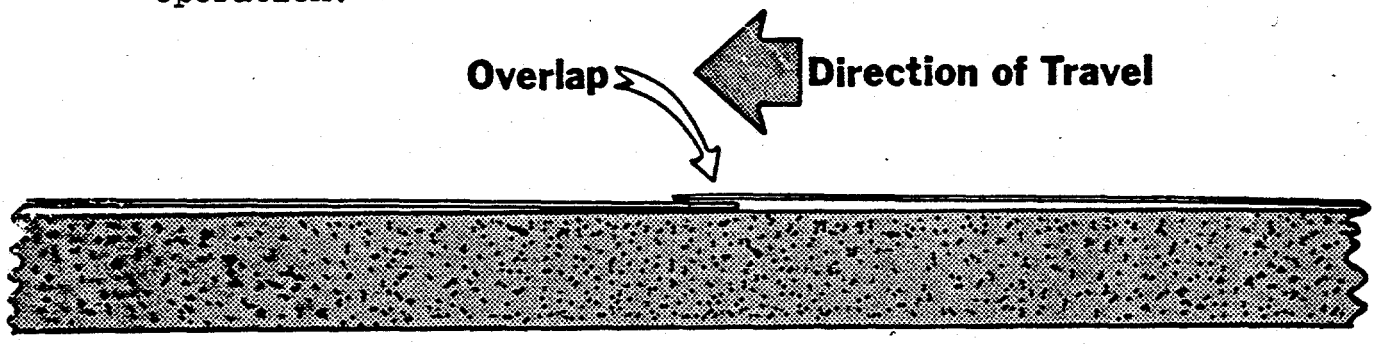
Examples of suffested overlay materials are:

- .Smooth, galvanized sheet metal
- .Hot rolled steel (no rust, oil, mill scale, burrs)
- .Aluminum (sheet or interlocking planks)
- .Painted steel (avoid urethane paints)
- .Vinyl linoleum (non-embossed)
- .Mylar
- .Sealed or smooth painted plywood
- .Standard plywood with overlay of vinyl, or metal
- .Masonite or Benelex

How to Apply Overlays Over Surfaces for Proper Aero-Caster Operation:

OVERLAYS Less Than .020" Thick -

.No tapering of edges is required for satisfactory operation.



.Overlap edges by shingling in the direction of travel so that Aero-Casters step down from one sheet to the next.

.Be sure that edges are free of burrs or sharp corners that might wear, cut, or tear the fabric of the Aero-Casters.

.Arrange sheets such that Aero-Casters cross the fewest number of joints. Sheets should be selected which are wider than the Aero-Casters in use. Care should be taken to avoid having Aero-Casters travel the length of a joint.

.Particular care should be taken where several sheets join together at odd angles such as in turning corners, so that joints are infrequent and "stack" heights are reduced.

OVERLAYS Greater Than .020" Thick:

.Bevel edges with 1:20 taper and deburr. (Taper of 1:10 will generally work, however, 1:20 or greater is preferred).

.Always overlap in direction of travel.

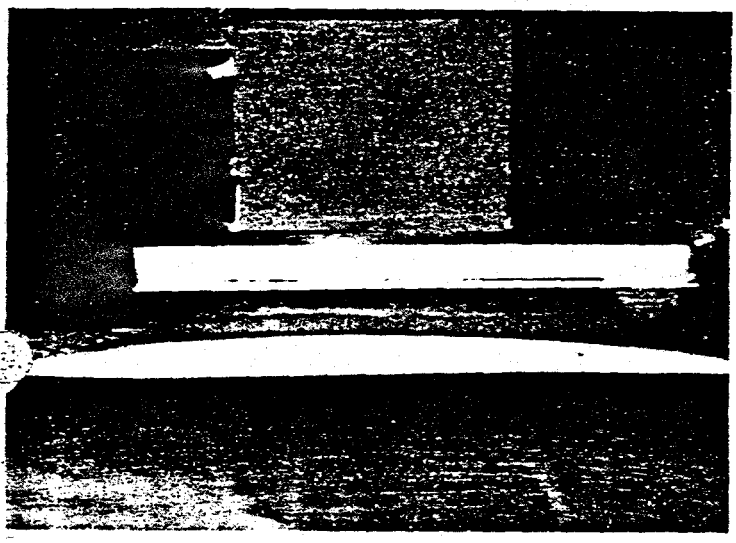
.Use vinyl "T" extrusion to seal butt joints of plywood panels or metal plates on construction and expansion joints. Duct tape applied to the underside of the gap may be used to secure the overlays in alignment.

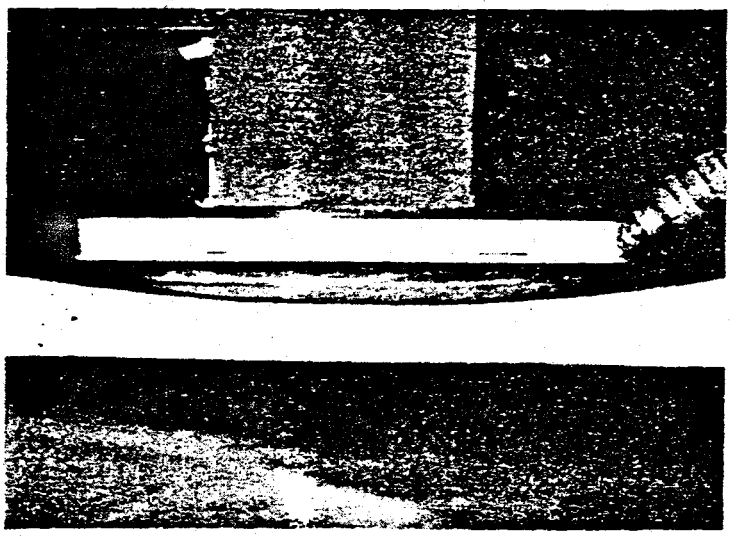
Out-of-Plane Surfaces:

A rule of thumb for how much out-of-plane an Aero-Caster can be and still operate is:

It can distort 1/4 of its effective lift height and still maintain its fluid film.

These photographs show the operation of a standard K12N Aero-Caster Load Module on a 4' metal radius providing dramatic evidence of the Aero-Caster's capability to contour and conform to out-of-plane surfaces.





Performance on both convex and concave surfaces is excellent at loads up to maximum ratings for all Aero-Caster sizes.

Shops fabricating large diameter tanks and pipes can find this of great interest. Positioning such large cylinders for convenient welding can save considerable time and provide high-quality welding results. With "air on" a cylinder is easily rotated. With "air off" the load sits firmly on landing blocks.

AIR SUPPLY

The use of low pressure air over a large area to lift heavy loads is not new. General Motors, around 1959, offered an air film bearing using this principle. The basic theory is: Load = Pressure x Area. Thus, low Pressure applied over a relatively large Area will lift heavy Loads. If the pressure is a fluid (and air and water are fluids), it not only lifts the load, but virtually eliminates friction as the fluid escapes under the lower surface. If the source of the air pressure is continuous, the load is not only lifted, but is floated on a film and can be moved effortlessly by traditional methods in any direction.

In effect, an Aero-Caster is an open ended piston with a controlled exhaust. The airfoil shape of the inflated torus bag is no accident. That shape meters the exhaust of the fluid, allowing passage over undulations in the floor surface, while maintaining the fluid film.

No load is too heavy to lift, provided enough base area is available. All that is needed is enough Area for the Pressure to be applied to equal the Load (L = PA).

The only requirements for proper operation of Aero-Casters are a proper, continuous fluid supply and a smooth, non-porous surface.

Note that the surface must be smooth, but not necessarily level. Aero-Casters will operate on a slope, provided that the transition onto and off of the slope is smooth (rounded) and not abrupt. Aero-Casters will also operate on slightly curved surfaces.

The Aero-Caster Load Module Specification Table will assist you in determining compressor or blower requirements for use with Aero-Caster systems.

The numbers on the table are in terms of "compressor rated air volume" (SCFM - standard cubic feet/minute*) for an average Index 2, smooth, sealed concrete operating surface. They are average numbers. Volumes 50 to 100% greater are often used to compensate for system leaks, occasional cracks, or any other irregularities.

*SCFM is the unit used in the compressor industry for rating the volume capacity of their equipment. It is the inlet volume and is cubic feet per minute at 14.7 psi absolute, 60°F, and dry air. All Aero-Go volume data has been converted to SCFM so that volumes referenced in Aero-Go literature are compatible with the compressor industry's units.

To present a few examples:

1. Maximum Load 28,000 pounds on Index 2 Surface:

   Four K21N Aero-Caster System would operate at 25 psi. Compressor must produce 16 SCFM x 4 = 64 SCFM as its minimum rated volume. One and one-half times the minimum rate, or 96 SCFM, is recommended.

2. Maximum Load 17,000 pounds on Index 2 Surface:

   Operating pressure with four K21N Aero-Caster Load Module units is:

   $$\frac{\text{(actual load)}}{\text{(maximum capacity 4-K21N)}} \quad \frac{17{,}000 \text{ lbs}}{28{,}000 \text{ lbs}} \times 25 \text{ psi} = 15 \text{ psi}$$

   From the Aero-Caster Load Module Specification Table you will see that the compressor must produce 15 SCFM per Aero-Caster or 60 SCFM for the four unit system as its minimum rated volume (14 SCFM for 12.5 psi and 15 SCFM for 18.75 psi). Ninety (90) SCFM or more is recommended.

3. Maximum Load 400,000 pounds on a generally smooth, sealed surface (Index 2), but with some filled expansion cracks, transitions to sheet metal overlays, etc. as imperfections:

   A 48NHD lifts 40 tons at 50 psi.

   Select six units for equal balancing. System will operate at a pressure of 42 psi (if the load is evenly distributed):

   $$\frac{\text{(actual load)}}{\text{(maximum capacity 6-K48NHD)}} \quad \frac{400{,}000 \text{ lbs}}{480{,}000 \text{ lbs}} \times 50 \text{ psi} = 42 \text{ psi}$$

   From the Aero-Caster Load Module Specification Table you will see that an Index 2 surface with the six Aero-Casters would require a compressor rated volume of about 276 SCFM. Because of the problems of floor transition, we would double the required volume to 552 SCFM.

Summary:

A good floor can be expected to require rated compressor volume according to the Aero-Caster Load Module Specification Table. However, doubling or even tripling these stated amounts is not uncommon to provide compensation for system leaks, minor transitions (steps), cracks, or any other surface irregularities.

In most cases there is more than adequate pressure available from plant air supplies which we usually regulate for best operation of the Aero-Casters. Proper pressure will inflate the Aero-Casters, but unless there is adequate volume, the Aero-Casters will not float properly. The all-too-common situation is air being delivered at high pressure through a small, volume restricting hose which starves the casters. Prior to flotation (inflated and sealed only) the supply hose pressure at Aero-Caster inlet will appear sufficient, but when more volume is demanded, the pressure cannot be maintained. Thus, we hear the term "inflated but not floated". This exactly describes the condition.

Most industrial plants have a compressed air source delivering 90 to 100 psi to air tools, motors, and other machinery. However, quite often the plant engineer will not know the volume capacity of the compressor. Usually the nameplate on the compressor will contain the rated capacity, but not always. As a rough rule of thumb, SCFM is four to five times the horsepower. Thus, if the nameplate lists 100 hp, 400 to 500 SCFM will be available. Of course the age, maintenance, and the size and length of the main air line all will have an effect on the actual psi and SCFM available at the specific plant location where Aero-Caster use is intended.

NOTE: Some portable rental compressors are throttled to prevent full flow volume, thereby saving on compressor wear. Have your customers check this out before renting equipment.